

BUFFALO

“BEST BUILT”

HOUSE PUMPS

CIRCULAR No. 235

BUFFALO STEAM PUMP COMPANY

BUFFALO, N. Y., U. S. A.

**Manufacturers of Steam, Power and Centrifugal
Pumping Machinery, Vacuum Pumps and Con-
densers of Every Description For All Requirements**

WORKS: NORTH TONAWANDA, N. Y.

NEW YORK

PHILADELPHIA

CHARLOTTE

MONTREAL, CANADA

CHICAGO

PITTSBURG

KANSAS CITY

ST. LOUIS

CINCINNATI

LOS ANGELES

LONDON, ENGLAND



B U F F A L O P U M P S



Buffalo Single-Suction Class "O" Pumps

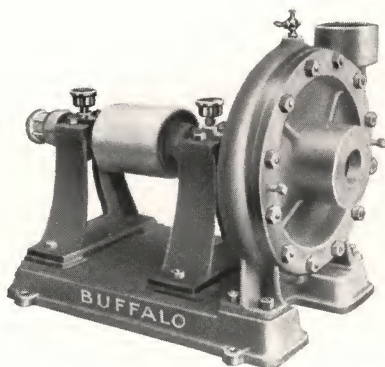


Fig. 942

Sizes, 1 and 1½ inch, pulley driven

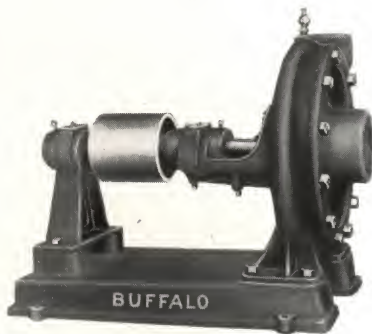


Fig. 943

Sizes, 2 to 3 inch, pulley driven

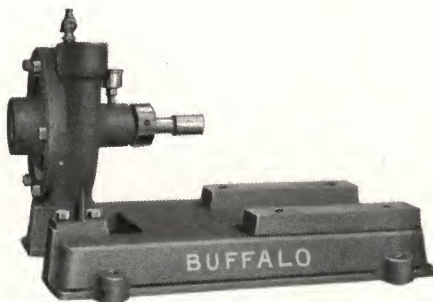


Fig. 944

1 and 1½ inch, direct connected

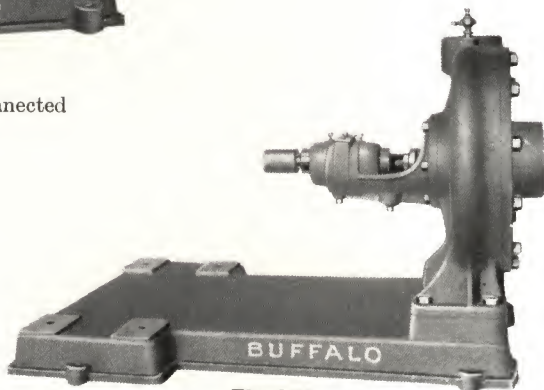


Fig. 945

2 to 3 inch, direct connected



Buffalo Single-Suction Class "O" Pumps

Shells Good for 100 Feet Pressure

SPECIFICATIONS

Shell and Side-Plate	Heavy grey cast iron, machined to gauge, drilling to template. Close clearances with runner preventing leakage.
Runner	Brass, enclosed type, highly polished, finished all over to template. Iron runner furnished on special order, same price.
Shaft	Open hearth machine steel, accurately finished. All rotating parts assembled on shaft and balanced before putting in pump.
Bearings	Babbitted, for grease lubrication on 1 and 1½-inch pulley pumps, and on 1 and 1½-inch direct-connected pumps. Ring-oiling, removable babbitted liners on 2-inch and larger pulley and direct-connected pumps.
Glands	On 1 and 1½-inch, brass; on other sizes cast iron, allowing ample packing space.
Oil Cups, etc.	Furnished.
Finish	All pumps thoroughly coated inside with anti-rust paint before assembly, and painted, filled and rubbed down outside, with final finishing coat. Bright parts exposed to weather protected by slushing compound during shipment.
Special Pumps	Built of any metal to suit specifications of customer.

HORIZONTAL PATTERNS

Size Pump	Pipe Sizes		Ordinary Range of Capacity Galls. per Minute		Diam. x Face Pulley	Length x Width	Weight Pulley Pump	Code Words	
	Suction	Discharge	Normal	Maximum				Pulley Pump	With Motor Base
This list similar to Figs. 942 and 944. Speeds on last page. Standard Shells designed for 100 ft. or 43 pounds pressure.									
1 1 ½	1 ½ 2	1 1 ½	25 55	35 75	3 x 3 4 x 4	17 x 12 19 x 14	... ...	Mkhyz Mkigm	Mkils Mkimv
This list similar to Figs. 943 and 945. Speeds on last page. Standard Shells designed for 100 ft. or 43 pounds pressure.									
2 2 ½ 3	2 ½ 3 4	2 2 ½ 3	100 155 225	135 210 300	5 x 5 6 x 5 7 x 6	22 x 15 27 x 18 29 x 26	... ... ...	Mkihn Mkiip Mkikt	Mkind Mkipk Mkizv

All these pumps regularly furnished with enclosed type polished brass runners—though if desired iron runners will be furnished—No Deduction Allowance.

Standard pumps are built "right hand" vertical up discharge for rotation in counter-clockwise direction when looking into suction inlet. An additional price of 5% of price of pulley-driven pump is charged for opposite direction of rotation or for special position of discharge outlet.

Owing to economy of metal very low prices on these pumps of ALL BRASS construction can be quoted. They are recommended for handling salt brine, etc.



Buffalo Compound Pumps

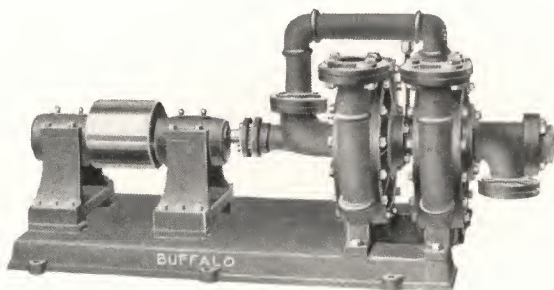


Fig. 955
Belted Compound Pump
With ring-oiling bearings;



Fig. 957
Compound Pump
Arranged to use as a sinker

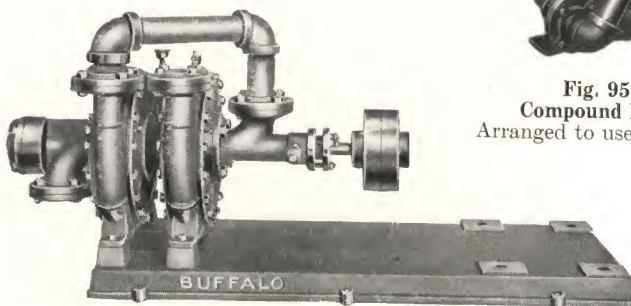


Fig. 956
Compound Centrifugal Pump
For direct connection to motor

Size	Normal Capacity G. P. M.	Speed	R. P. M. for Total Heads of 50-160 Feet											Extra Heavy Construction Req'd at Additional Price			
			50'	60'	70'	80'	90'	100'	120'	140'	16 0	180'	200'	220'	240'		
1"	25	Std.	1180	1290	1400	1480	1580	1660	1820	1970	2110	2240	2360	2480	2600		
		Max.	2280	2480	2680	2870	3060	3200	3200	3200	3200	3200	3200	3200	3200		
1 1/2"	55	Std.	1180	1290	1400	1480	1580	1660	1820	1970	2110	2240	2360	2480	2600		
		Max.	2280	2480	2680	2870	3060	3200	3200	3200	3200	3200	3200	3200	3200		
2"	100	Std.	1050	1140	1220	1300	1370	1440	1570	1680	1800	1900	1990	2080	2160		
		Max.	1830	2020	2180	2360	2500	2640	2900	3100	3100	3100	3100	3100	3100		
2 1/2"	155	Std.	900	980	1050	1100	1170	1220	1340	1440	1530	1610	1700	1770	1840		
		Max.	1720	1880	2020	2170	2300	2400	2650	2860	3000	3000	3000	3000	3000		
3"	225	Std.	670	720	780	820	870	920	1000	1080	1160	1220	1290	1350	1410		
		Max.	1720	1880	2020	2170	2300	2400	2600	2700	2800	2850	2900	2900	2900		

Std. Speed is Belted Speed. For Motor Drive use any speed between Std. Speed and Max. Speed to suit standard motors.



Buffalo Compound Pumps

There are many cases where the motor speed is limited, and yet the head being under 150 or 200 feet and the water quantity desired is small a Buffalo Compound Pump must be used instead of one of the regular single-stage patterns. These machines find wide use for tank service, for handling circulating water, oil, and in vertical patterns particularly have we built a great many; all of which have given the very best service.

In many buildings where the city water pressure will not force water supply to the few upper floors these pumps are used with complete success, usually being automatically-controlled electric-driven installations, the operation being governed by a float in a tank on the roof or upper floor. It is possible also to control the pump by means of a pressure type switch which will shut off the motor when the pressure in air tank or in the vertical riser pipe has reached a predetermined amount for which the apparatus may be set.

Inquiries for electric-driven units should state fully all details of arrangement desired and give particulars as to the nature and voltage of the electric current available to operate the motor.

HORIZONTAL PATTERNS—BUILT ALSO IN VERTICAL PATTERNS

Size Pump	Pipe Sizes		Ordinary Range of Capacity Galls. per Minute		Diam. x Face Pulley	Length x Width	Weight Pulley Pump	Code Words	
	Suction	Discharge	Normal	Maximum				Pulley Pump	With Motor Base and Flanged Coupling

This list similar to Figs. 955 and 956.

Standard Shells designed for 150 ft. or 65 pounds—Special Shells for higher pressures.

1	1 1/2	1	25	35	5 x 5	43 x 18	....	Mkjat	Mkjb
1 1/2	2	1 1/2	35	75	5 x 5	43 x 18	....	Mkje	Mklaw
2	2 1/2	2	100	135	6 x 5	54 x 23	....	Mkja	Mkle
2 1/2	3	2 1/2	155	210	7 x 6	54 x 23	....	Mkjo	Mkli
3	4	3	225	300	7 x 6	60 x 25	....	Mkju	Mklob

All these pumps regularly furnished with enclosed type brass runners—though if desired iron runners will be furnished—(No Deduction Allowance), and ball-bearing thrusts are furnished ordinarily.

Unless otherwise specified these pumps will be furnished "right hand" or for rotation in counter-clockwise direction looking into runner inlet of first stage, and up discharge. For other direction of rotation or special position of discharge add 5% of price of pulley pump.



B U F F A L O P U M P S



Buffalo Automatic Sump Pumps, Bilge or Sewage Ejectors



Fig. 1105

Furnished with round or square sump pit covers, see table on opposite page

Never use smaller than 4-inch pump where sewage with solid matter is expected to be handled.



BUFFALO PUMPS



Buffalo Automatic Sump Pumps, Bilge or Sewage Ejectors

The success which has attended the operation of the hundreds of pumps of this type illustrated on the opposite page is the very best recommendation the Buffalo Automatic Sump Pump could have.

To point out the difference between our pump and some of the cheaper, but less successful outfits, intended to perform similar work, we call attention to the following:

1. A self-contained outfit which on arrival needs only to be uncased, connections to the automatic starter and motor made, and the unit is ready for operation.

2. Shaft is entirely enclosed and *really* is protected from action of sump water and possibility of fouling from waste or stringy matter flowing into sump pit.

3. Ball-bearing thrust is provided to carry weight of moving parts, lower ball race resting on spherical seat to permit it to adjust to conditions of alignment.

4. Oil—NOT GREASE—is used to lubricate this thrust. For intermittent operation at high speed nothing could be a poorer lubricant than grease, which is thrown away from the bearing surfaces by the rapid rotation and, owing to the fact that the pump operates for only a few minutes at a time to empty the sump, the grease does not get warmed up and become fluid enough to flow to the bearing surfaces.

5. Oil lubricant is supplied to the ball-bearing thrust automatically in a continuous flood while pump is in operation. Full description of design on page 62.

6. Stuffing-box and gland around shaft at cover plate prevent any steam, gases or foul odors rising into room, if edge of cover plate be caulked tight.

7. All parts of outfit easily accessible.

In sending inquiry state whether standard depth of 4 foot sump pit will be used, the total head against which the pump will operate, and what electric current is available to operate motor.

We are also pleased to quote on standard or special cast-iron pits with one or more inlets. Send sketch.

Maximum Gallons per Minute	Feet Total Operating Head	Code Word Pump Without Electrical Equip- ment	Code Words, Including Motor and Starter, Float, etc., for Various Currents not Including Cast-Iron Sump Pit. Pumps Designed for Standard Sump Pit 4 Feet Deep, with Cover Plates 3 Feet Diameter or 3 Feet Square.						
			110-Volt Direct Current	220-Volt Direct Current	550-Volt Direct Current	115-Volt or 230-Volt Single Phase 60-Cycle Alternat- ing	440-Volt Single Phase 60-Cycle Alternat- ing	100, 200 or 400-Volt 2 or 3 Phase 60-Cycle Alternat- ing	100, 200 or 400-Volt 2 or 3 Phase 25 Cycle
60 (1 1/2 inch disch'g)	10 15 20	Mrtal Mrtem Mrtin	Mrvos Mrwut Mrwyp	Mshat Mshv Mshia	Msjoc Msjud Msjyf	Mskad Mskef Mskig	Msmok Msmul Msmym	Msvan Msvcp Msvir	Msvov Msvru Msvyz
125 (2 inch disch'g)	10 15 20	Mrtop Mrtur Mrtys	Mrxap Mrxer Mrxix	Mshox Mshuz Mshyb	Msgaz Msgeb Msqic	Mskoh Mskuj Mskyk	Msnah Msnaj Msnuk	Msvos Msvul Msvyv	Mtats Mtagt Mtahw
200 (2 1/2 inch disch'g)	10 15 20	Mrvam Mrven Mrvip	Mrxot Mrxuv Mrxxy	Msdaw Msdxr Msdz	Msgod Msgrf Msryg	Mslaf Mslag Mslkh	Msnol Msnym	Mswap Mswcr Mswis	Mtakd Mtalz Mtanf
275 (3 inch disch'g)	10 15 20	Mrvor Mrvus Mrvyt	Mshat Mshv Mshia	Msdob Msduc Msdyd	Msjac Msjed Msjif	Mslaj Msluk Mslyl	Mstam Msten Mstip	Mswot Mswuv Mswya	Mtarg Mtasb Mtawk
500 (4 inch disch'g)	10 15 20	Mrwan Mrwep Mrwir	Mshox Mshuz Mshyb	Msfax Msfej Msfib	Msjog Msjuh Msjyj	Msmag Msmeh Msmij	Mstor Mstus Mstyl	Msxar Msxes Msxrl	Mtarp Mtavb Mtbev

Larger size pumps, or for deeper sump pits, for higher heads or with special size covers, quoted on request



B U F F A L O P U M P S



Buffalo Class "K" Triplex Pumps

SINGLE ACTING

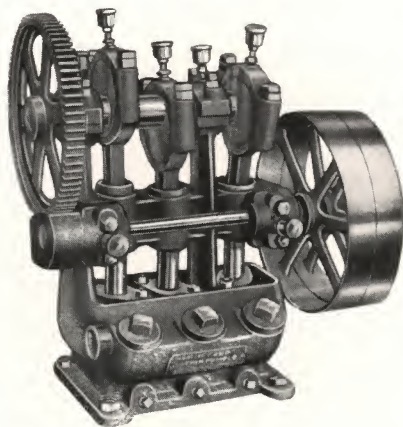


Fig. 415

Size, $1\frac{1}{4} \times 2$

Valve Chest and Frame in one casting.

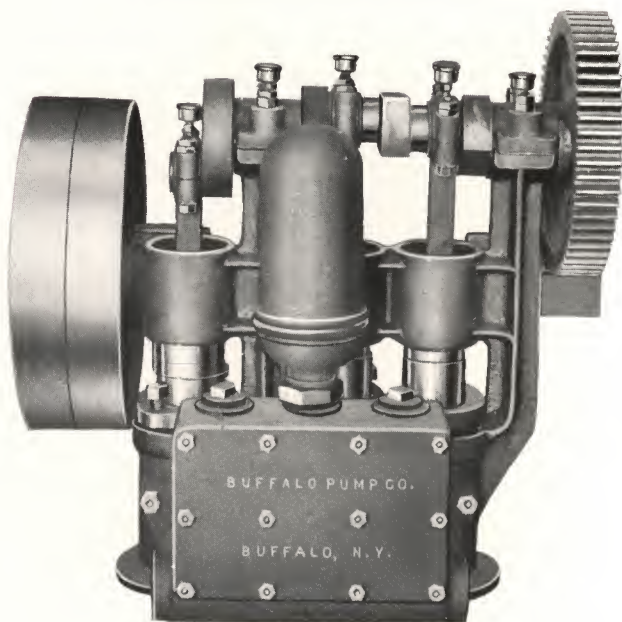


Fig. 416

Size, 4×4

Air Chamber regularly furnished for Discharge.



BUFFALO PUMPS



Buffalo Class "K" Triplex Pumps

SINGLE ACTING

For General Water Supply, Boiler Feeding, Tank Work,
Mine Pumping, Etc.

SPECIFICATIONS

Frame	Close-grained iron cast in one piece with crosshead guides and cylinders, insuring perfect alignment of all working parts.
Crankshaft	Open hearth steel casting in one piece. Forged steel shafts furnished on special order.
Bearings	Crankshaft and pinion shaft bearings are very large and are babitted, peined and scraped.
Gearing	Gear and pinion charcoal iron cut from the solid. Pinion covered by gear guard.
Crossheads	Are cylindrical in form, one piece with plunger and run in bored guides. Crosshead pin is of steel, under oil.
Connecting Rods	Of cast steel, have adjustable babitted boxes, marine type, at crank end, and bronze bushings at crosshead end.
Cylinders	Close-grained iron cast in one piece with frame carrying bearings and crosshead guides. Raised edge around top of cylinders catches all drip.
Plungers	Hard cast iron, except in size 1 1/4" x 2", which has bronze plungers.
Glands	Cast iron, allowing ample packing space.
Valve Chest	In one casting with large area, no air pockets, direct water ways and easy access.
Valves	For regular fitted pumps for cold water, medium rubber discs on bronze grid seats with cylindrical brass springs. For brass fitted pumps for hot water, hard rubber disc valves are furnished. Brass disc valves furnished with either regular or brass fitted pumps on special order at same price. All pumps Fig. 415 have brass wing valves and driven brass seats.
Air Chamber	Supplied with Fig. 416. Supplied with Fig. 415 at small extra charge. Vacuum chamber to order.
Oil Cups and Special Wrenches	Supplied with pump.
Special	Bronze Plungers, Bronze-Lined Cylinders and Glands, Cast-Steel Gearing, Rawhide Pinions, etc., to order.

Diameter Plungers	Stroke	Gallons per Revolution	Revolutions per Minute	Gallons per Minute	Max. Working Pressure Lbs.	Suction	Discharge	Gear Ratio — To 1	Tight and Loose Pulleys	Code Word Regular Fitted Belted	Code Word With Motor Base and Gears
-------------------	--------	------------------------	------------------------	--------------------	----------------------------	---------	-----------	-------------------	-------------------------	---------------------------------	-------------------------------------

This list similar to Fig. 415.

1 1/4	2	.033	60	1.9	200	1	3/4	5	12 x 1 1/2	Lgabs	Lgask
-------	---	------	----	-----	-----	---	-----	---	------------	-------	-------

This list similar to Fig. 416.

2	3	.12	60	7.4	150	1 1/2	1	5	12 x 3	Lgagh	Lgavz
2 1/4	3	.15	60	9.3	110	1 1/2	1	5	12 x 3	Lgajd	Lgbah
2 1/2	4	.21	60	12.4	150	2	1 1/2	5	16 x 3	Lgalm	Lgbej
3	4	.25	60	15.3	110	2	1 1/2	5	16 x 3	Lgamg	Lgbik
3 1/2	4	.36	60	21.9	87	2	1 1/2	5	16 x 3	Lgant	Lgbol
4	4	.50	60	30.1	150	2 1/2	2	4	20 x 3	Lgapf	Lgbum
4	4	.65	60	39.2	110	2 1/2	2	4	20 x 3	Lgarp	Lgbym

Add Code Word "Jkat" for Brass Fitted.



B U F F A L O P U M P S



Buffalo Class "K" Triplex Pumps

SINGLE ACTING

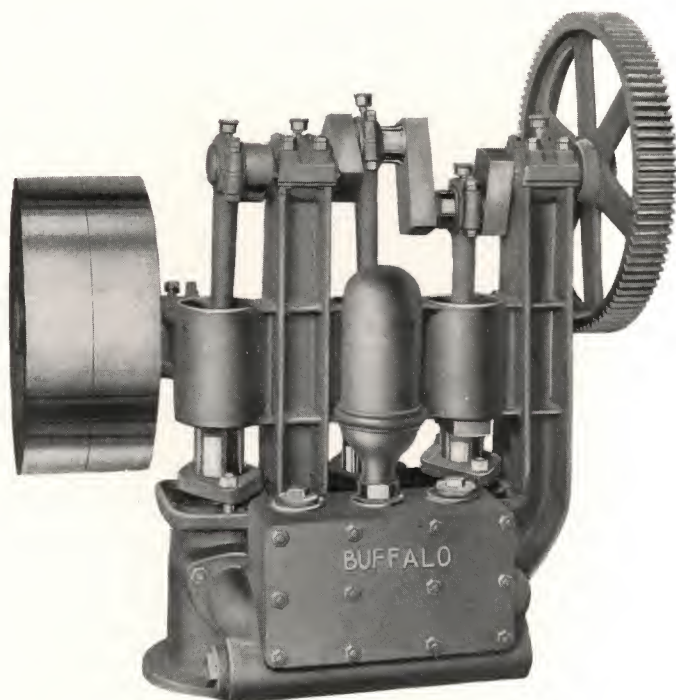


Fig. 420

Size, 4 x 6



BUFFALO PUMPS



Buffalo Class "K" Triplex Pumps

SINGLE ACTING

For General Water Supply, Boiler Feeding, House Pumps, Mine Pumping, Etc.

SPECIFICATIONS

Frame	Close-grained iron cast in one piece with crosshead guides and cylinders, insuring perfect alignment of all working parts.
Crankshaft	Open hearth steel casting in one piece. Forged steel shafts furnished on special order.
Bearings	Crankshaft and pinion shaft bearings are very large and are babbitted, peined and scraped.
Gearing	Gear and pinion charcoal iron cut from the solid. Pinion covered by gear guard.
Crossheads	Fitted with adjustable babbitted shoes which run in bored guides. Crosshead pin of steel, under oil.
Connecting Rods	Open hearth steel castings with large babbitted boxes, marine type, at crank end with bronze bushings at crosshead end.
Cylinders	Close-grained iron cast in one piece with frame carrying bearings and crosshead guides. Raised edge around top of cylinders catches all drip.
Plungers	Hard cast iron. Bronze plungers furnished on special order.
Glands	Cast iron, allowing ample packing space.
Valve Chest	In one casting with large valve area, no air pockets, direct water ways and easy access.
Valves	For regular fitted pumps for cold water, medium rubber discs on bronze grid seats with cylindrical brass springs. For brass fitted pumps, for hot water, hard rubber disc valves are furnished. Brass disc valves furnished for either regular or brass fitted pumps on special order at same price.
Air Chamber	Supplied with pump. Vacuum Chamber to order.
Oil Cups and Special Wrenches	Supplied with pump.
Special	Bronze Plungers, Bronze-Lined Cylinders and Glands, Cast-Steel Gearing, Rawhide Pinions, etc., to order.

Diameter Plungers	Stroke	Gallons per Revolution	Revolutions per Minute	Gallons per Minute	Max. Working Pressure Lbs.	Suction	Discharge	Gear Ratio — To 1	Tight and Loose Pulleys	Code Word Regular Fitted Belted	Code Word With Motor Base and Gears
3 1/2	6	.74	55	41	150	3	2 1/2	5	20 x 4	Lgcj	Lgdak
4	6	.98	55	54	110	3	2 1/2	5	20 x 4	Lgcek	Lgdel
4	6	.98	55	54	150	3	2 1/2	5	24 x 5	Lgcil	Lgdim
4 1/2	6	1.2	55	68	110	3	2 1/2	5	24 x 5	Lgcom	Lgdon
5	6	1.5	55	84	87	4	3	5	24 x 5	Lgcun	Lgdup
5 1/2	6	1.8	55	102	75	4	3	5	24 x 5	Lgcyp	Lgdyr

This list similar to Fig. 420.

Add Code Word "Jekat" for Brass Fitted.



BUFFALO PUMPS



Buffalo Triplex Pumps

SINGLE ACTING

WITHOUT GEARS

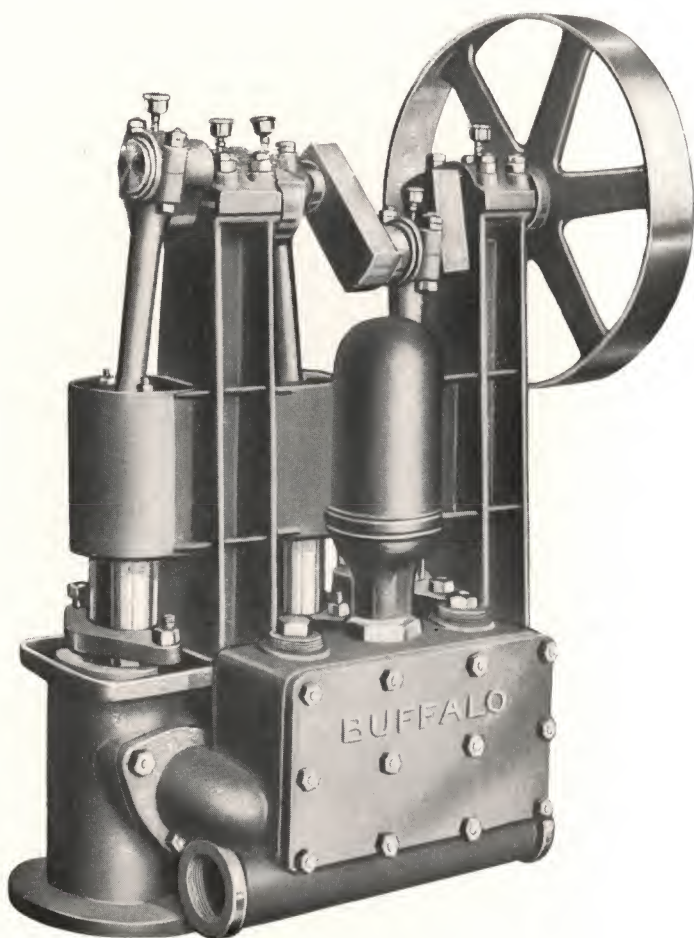


Fig. 475

Size, 4 x 6



BUFFALO PUMPS



Buffalo Triplex Pumps

SINGLE ACTING

WITHOUT GEARS

The specifications of these pumps are practically the same as those with gears—the only difference being that large tight and loose pulleys are mounted directly on the extended crankshaft. This necessitates the use of a comparatively low-speed motor.

There are many cases, as in apartment houses, office buildings, hospitals and asylums, where the slight noise consequent in the operation of gears is objectionable, and where the water pressure and motor speed permit the use of a pump without gears as illustrated on the opposite page.

As the pulley is mounted directly on the extended crankshaft the pinion shaft and gears are done away with entirely.

Inquiries should state full details of water pressure (and pressure on suction if any), and horsepower, speed and size of pulley on motor available for operating the pump, or it may be left to our Engineering Department to make recommendations. In this case state voltage of electric current to be used and if alternating current the phase, and cycles as well.

Many installations of these pumps for house service include automatic control of the electric motor driving the pump so that the unit requires only the attention of an attendant a few minutes daily to fill grease cups, etc.

Diameter Plungers	Stroke	Gallons per Revolution	Revolutions per Minute	Gallons per Minute	Max. Working Pressure Lbs.	Suction	Discharge	Pulley for 50 Pounds Pressure	Pulley for 90 Pounds Pressure	Code Word Regular Fitted
-------------------	--------	------------------------	------------------------	--------------------	----------------------------	---------	-----------	-------------------------------	-------------------------------	--------------------------

This list similar to Fig. 475.
Rated "Working Pressure" represents rated strength of Power Frame.

2 1/4	4	.21	60	12.4	150	2	1 1/2	16 x 3	20 x 3	Lgrax
2 1/2	4	.25	60	15.3	110	2	1 1/2	16 x 3	20 x 3	Lgrez
3	4	.36	60	21.9	87	2	1 1/2	20 x 3	24 x 5	Lgrib
3 1/2	4	.50	60	30.1	150	2 1/2	2	20 x 4	24 x 5	Lgrud
4	4	.65	60	39.2	110	2 1/2	2	20 x 4	24 x 5	Lgruf
3 1/2	6	.74	55	41	150	3	2 1/2	36 x 6 1/2	40 x 6 1/2	Lgsaz
4	6	.98	55	54	110	3	2 1/2	36 x 6 1/2	40 x 6 1/2	Lgsaz
4 1/2	6	1.2	55	68	110	3	2 1/2	36 x 6 1/2	40 x 6 1/2	Lgsic
5	6	1.5	55	84	87	4	3	36 x 6 1/2	40 x 6 1/2	Lgsod
5 1/2	6	1.8	55	102	75	4	3	36 x 6 1/2	40 x 6 1/2	Lgsuf

Correspondence solicited regarding larger sizes. Inquiries should state water pressure and speed with pulley size on driving motor or line shaft.

Add Code Word "Jekat" for Brass Fitted.



BUFFALO PUMPS



Buffalo Triplex Automatic House Pumps

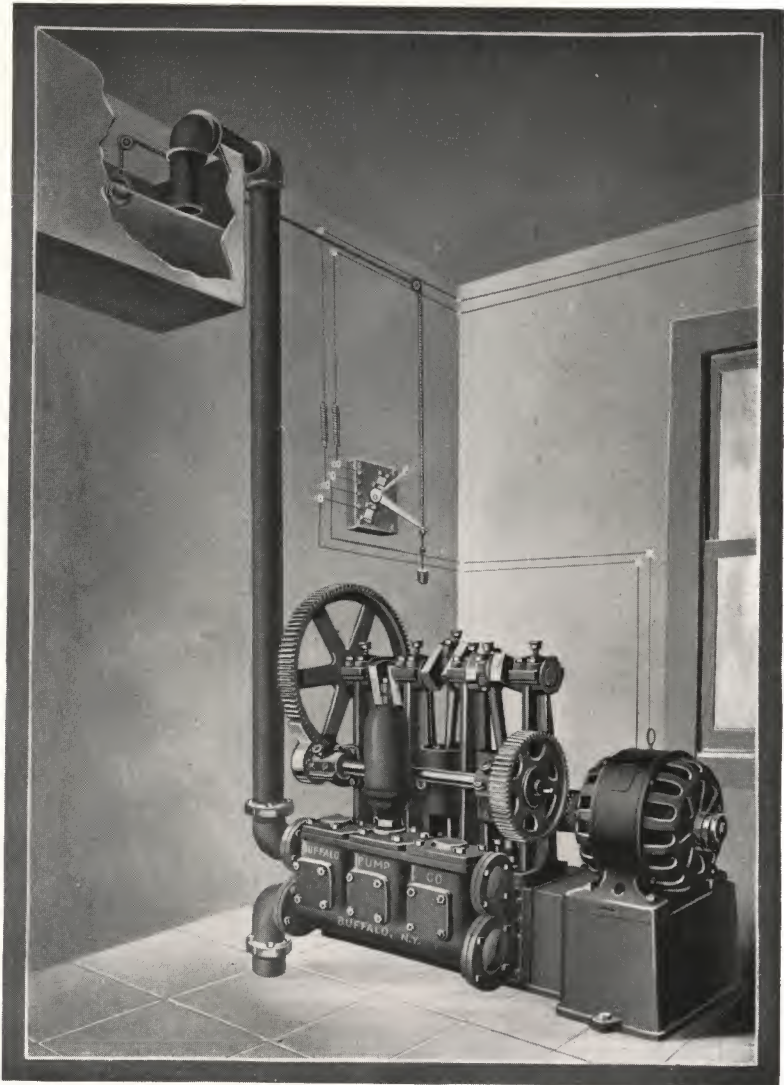


Fig. 480



BUFFALO PUMPS



Buffalo Triplex Pumps

FORMS OF DRIVE

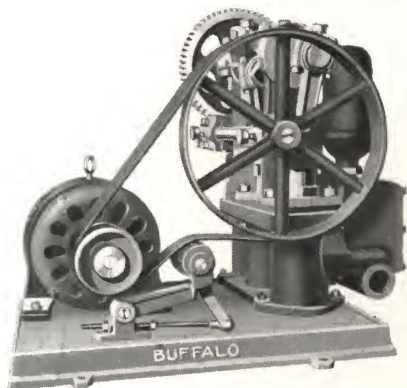


Fig. 486
With Idler Pulley
Code word, *Jcl/p*

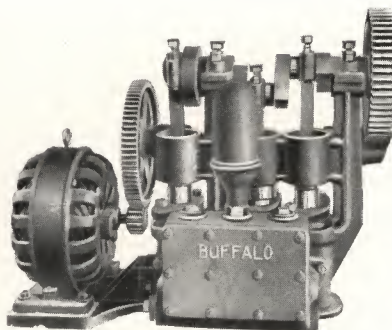


Fig. 481
For Class "K" Pumps
Code Word, *Jclht*
Rawhide Pinion for motor shaft is furnished

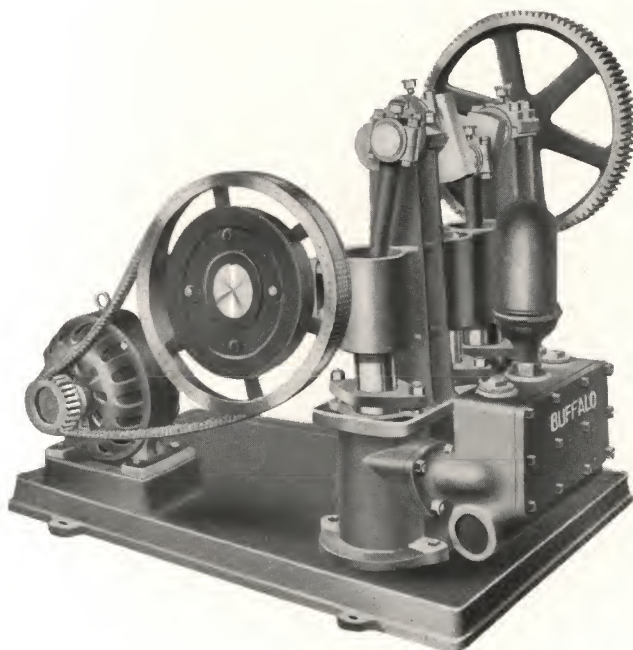


Fig. 487
Silent Chain Drive
Code word, *Jcl/s*



BUFFALO PUMPS



Speed Table for Single-Suction Class "O" Pumps

(Listed on page 2)

NOTES.—With reference to all speed tables:

"STD. SPEED"—Speed for belted pumps discharging normal capacity of pump.

"MAX. SPEED"—For direct-connected units, any speed (to suit standard motors) may be chosen between STANDARD SPEED and MAXIMUM SPEED.

SPECIAL SPEEDS—Can be furnished at special prices. Write us, giving all data.

SPEEDS FOR LARGER CAPACITIES—Than "Normal Capacity" as given in the tables herewith will be furnished on request. It will be understood that increasing the running speed will increase volume of water delivered at any given head.

Size	Normal Cap. G.P.M.	Speed	R. P. M. FOR TOTAL HEADS OF 5-100 FEET.															
			5'	10'	15'	20'	25'	30'	35'	40'	45'	50'	60'	70'	80'	90'	100'	
1"	25	{ <i>Std.</i> <i>Max.</i>	900 1500	1200 2000	1420 2500	1620 3000	1800 3300	1950 3500	2100 3500	2250 3500	2400 3500	2520 3500	2780 3500	3000 3500	3200 3500	3350 3500		
1½"	55	{ <i>Std.</i> <i>Max.</i>	600 1100	800 1450	930 1800	1060 2050	1180 2280	1290 2480	1400 2680	1480 2870	1580 3060	1660 3200	1820 3200	1970 3200	2110 3200	2240 3200	2360 3200	
2"	100	{ <i>Std.</i> <i>Max.</i>	500 900	700 1200	830 1420	950 1640	1050 1830	1140 2020	1220 2180	1300 2360	1370 2500	1440 2640	1570 2900	1680 3100	1800 3100	1900 3100	1990 3100	
2½"	155	{ <i>Std.</i> <i>Max.</i>	460 800	600 1100	720 1300	810 1520	900 1720	980 1880	1050 2020	1100 2170	1170 2300	1220 2400	1340 2650	1440 2860	1530 3000	1610 3000	1700 3000	
3"	225	{ <i>Std.</i> <i>Max.</i>	440 800	480 1100	550 1300	610 1520	670 1720	720 1880	780 2020	820 2170	870 2300	920 2400	1000 2600	1080 2700	1160 2800	1220 2850	1290 2900	

Table of Power Required to Operate Buffalo Single-Acting Triplex Pumps

Brake horsepower statements in the table contain a **liberal margin**. Closer guarantees can be made on receipt of full statement of details. The brake (or actual) horsepower for other capacities and heads is approximately proportional to that tabulated. The total working "head" of pump consists of suction lift plus discharge lift (or pressure) plus pipe friction (for which see table on another page).

Buffalo Pumps handle *more* water than other pumps of the same size. Because of their rigid design and accurate construction higher crankshaft speeds may be used.

Size Single- Acting Pump	Full Rated Capac- ity Gallons Per Minute	ACTUAL BRAKE HORSEPOWER REQUIRED TO OPERATE PUMP								
		50 Feet Head or 21 Pounds	100 Feet Head or 43 Pounds	150 Feet Head or 65 Pounds	200 Feet Head or 87 Pounds	250 Feet Head or 108 Pounds	300 Feet Head or 130 Pounds	350 Feet Head or 150 Pounds	405 Feet Head or 175 Pounds	460 Feet Head or 200 Pounds
1¼ x 2	1.9	.50	.50	.50	.50	.50	.50	.56	.65	.74
2 x 3	7.4	.50	.62	.94	1.25	1.55	1.88	2.18	2.35	2.46
2¼ x 3	9.3	.50	.78	1.18	1.34	1.68	2.02	2.35	2.71	3.1
2¼ x 4	12.4	.63	1.04	1.35	1.57	1.95	2.35	2.74	2.95	3.2
2½ x 4	15.3	.75	1.2	1.65	1.84	2.25	2.58	3.0	3.27	3.42
3 x 4	21.9	.89	1.32	1.93	2.35	2.95	3.32	3.9	4.25	4.55
3½ x 4	30.1	1.0	1.5	2.15	2.67	3.2	3.7	4.3	4.75	5.4
4 x 4	39.2	1.4	1.8	2.45	3.0	3.65	4.4	5.1	5.75	6.5
3½ x 6	41	1.5	1.9	2.5	3.1	3.8	4.5	5.25	6.0	6.8
4 x 6	54	1.9	2.5	3.3	4.0	5.0	5.95	6.9	7.9	9.0
4½ x 6	68	2.0	3.1	3.8	4.75	6.0	7.2	8.6	9.9	11.3
5 x 6	84	2.2	3.9	4.5	5.6	7.0	8.4	10.6	12.3	14.0
5½ x 6	102	2.7	4.6	5.5	6.8	8.5	10.2	12.9	14.9	17.0